FIG. 1   *Fig. 1 – Traditional Spooler Based Print Model*

Fig 1a - Despooling of Job 1 – Raw Data
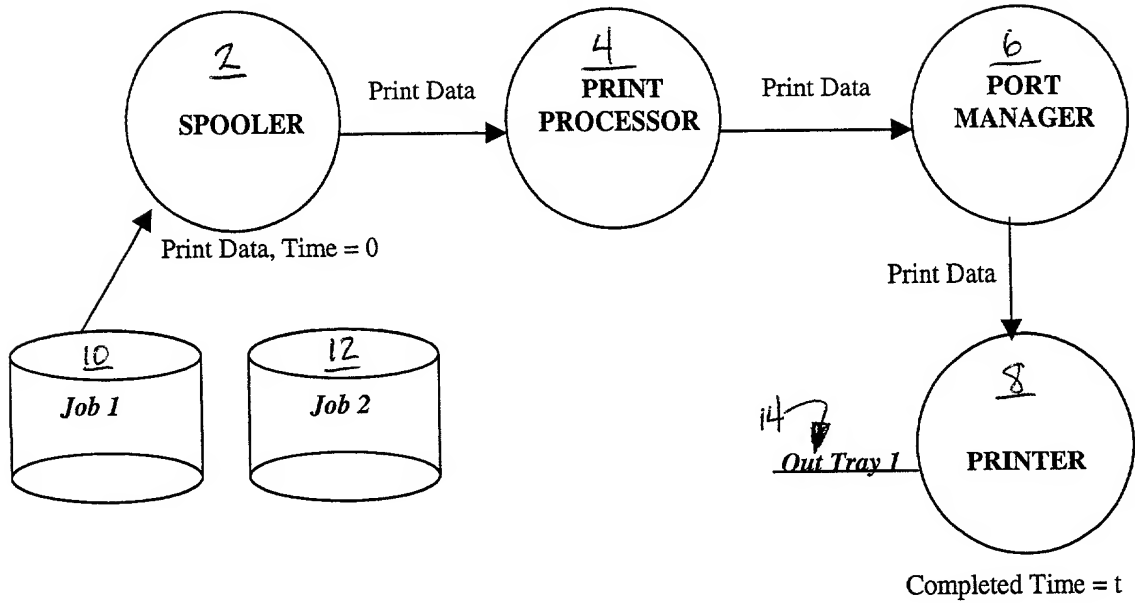

SPOOLER **2** — Print Data → PRINT PROCESSOR **4** — Print Data → PORT MANAGER **6**

Print Data, Time = 0

Job 1 **10**   Job 2 **12**

Print Data ↓

PRINTER **8**

14 Out Tray 1

Completed Time = t

FIG. 2   ~~Fig. 1b~~ - *Despooling of Job 2 – Raw Data*

SPOOLER **2** — Print Data → PRINT PROCESSOR **4** — Print Data → PORT MANAGER **6**

Print Data, time = t + y, where y >= 0

Job 1 **10**   Job 2 **12**

Print Data ↓

PRINTER **8**

14 Out Tray 1
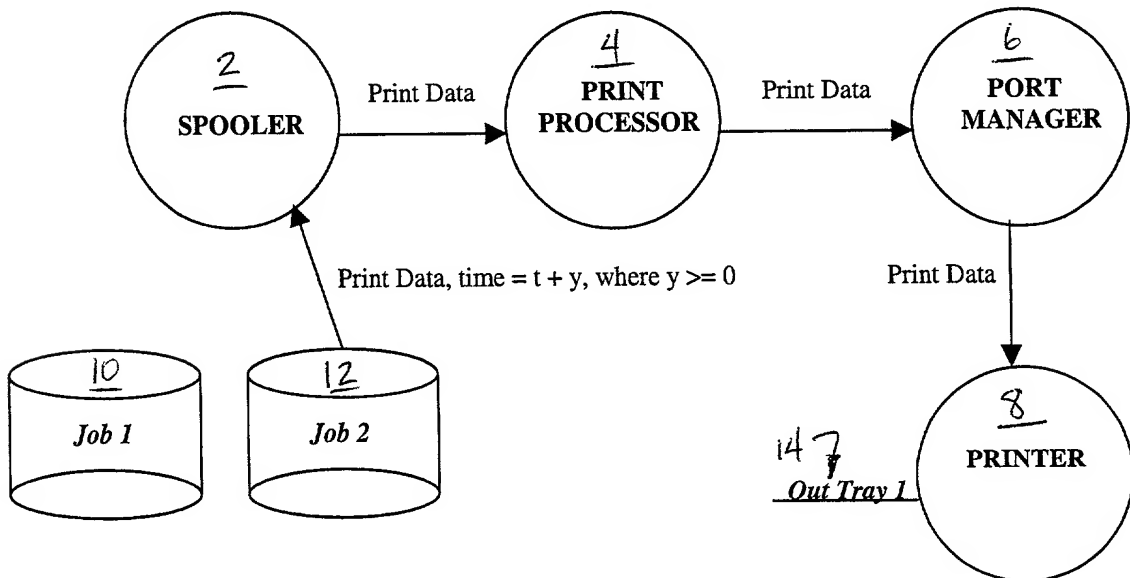
FIG. 3

Fig. 3a – Multiple Print Job Progression – Single Printer – Traditional

8 PRINTER

14
Tray 1- PJ_1 , PJ_2 , PJ_3

Tray 2
16

10   PJ_1 - *1000 Pages*   Completed = *1000t*

12   PJ_2 - *10 Pages*   Completed = *1010t*

18   PJ_3 - *10 Pages*   Completed = *1020t*
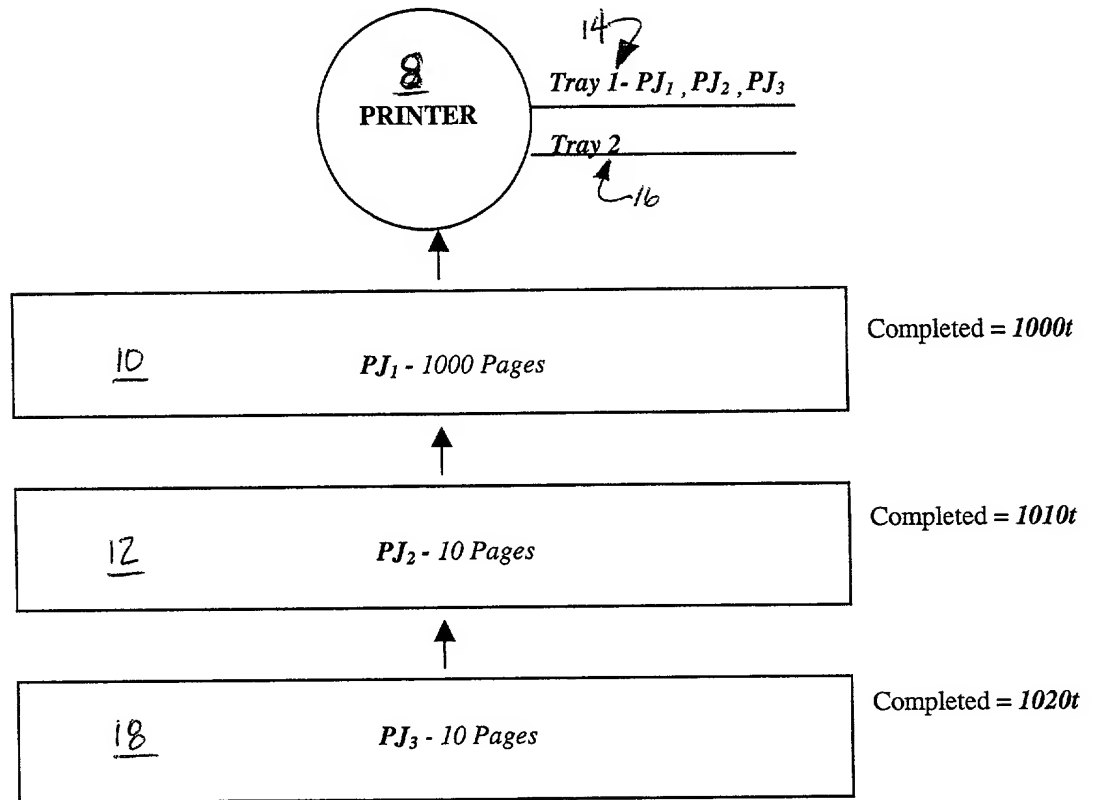
FIG. 4

Fig. 1c - Despooling of Job 1 – Journaled Data

Print Data

22
SPOOLER

Journaled Data →

24
PRINT PROCESSOR

Print Data

26
PORT MANAGER

Journaled Data, Time = 0

Print Data

Journaled Data

Print Data

34
Job 1

32
Job 2

30
PRINT DRIVER

36
Out Tray 1

28
PRINTER
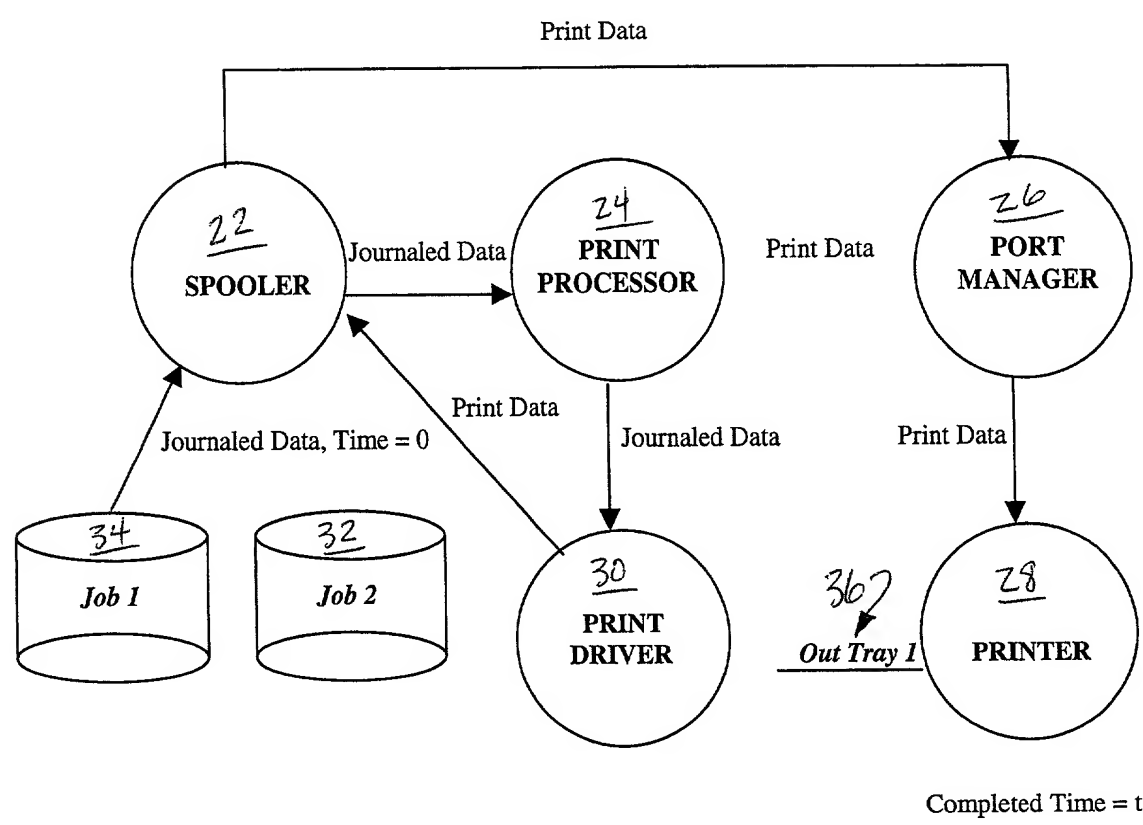
Completed Time = t

FIG. 5   ~~Fig. 1d~~ - *Despooling of Job 2 – Journaled Data*

Print Data

<u>22</u>
SPOOLER

Journaled Data

<u>24</u>
PRINT PROCESSOR

Print Data

<u>26</u>
PORT MANAGER

Journaled Data, Time = t + y, y>=0

Print Data

Journaled Data

Print Data

<u>34</u>
Job 1

<u>32</u>
Job 2

<u>30</u>
PRINT DRIVER

<u>36</u>
Out Tray 1

<u>28</u>
PRINTER
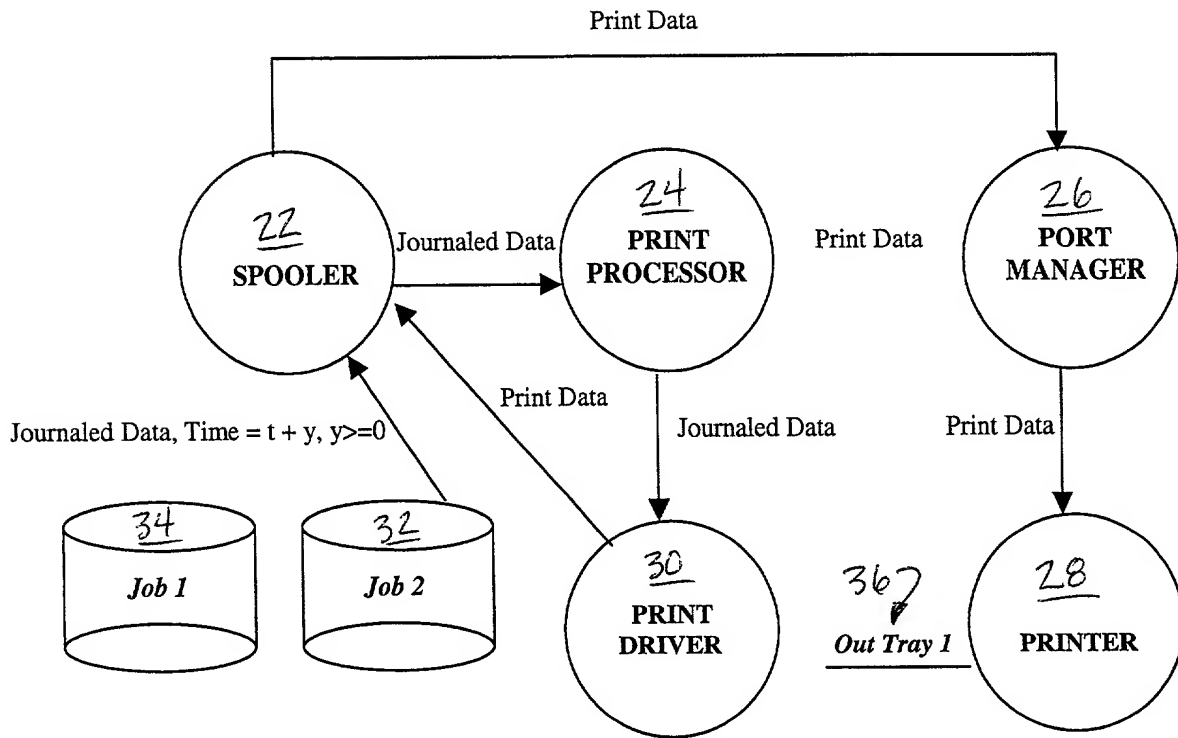
FIG. 6

Fig. 2a - Interleaved Despooling of Print Jobs 1 & 2 – RAW Data

42
SPOOLER

— Print Data →

44
PRINT PROCESSOR

— Print Data →

46
PORT MANAGER

Tray = 1   *Tray = 2*   Print Data, time = 0

50
Job 1

52
Job 2

Print Data

54
Print Job 1 - Out Tray 1

Print Job 2 - Out Tray 2

56

48
PRINTER
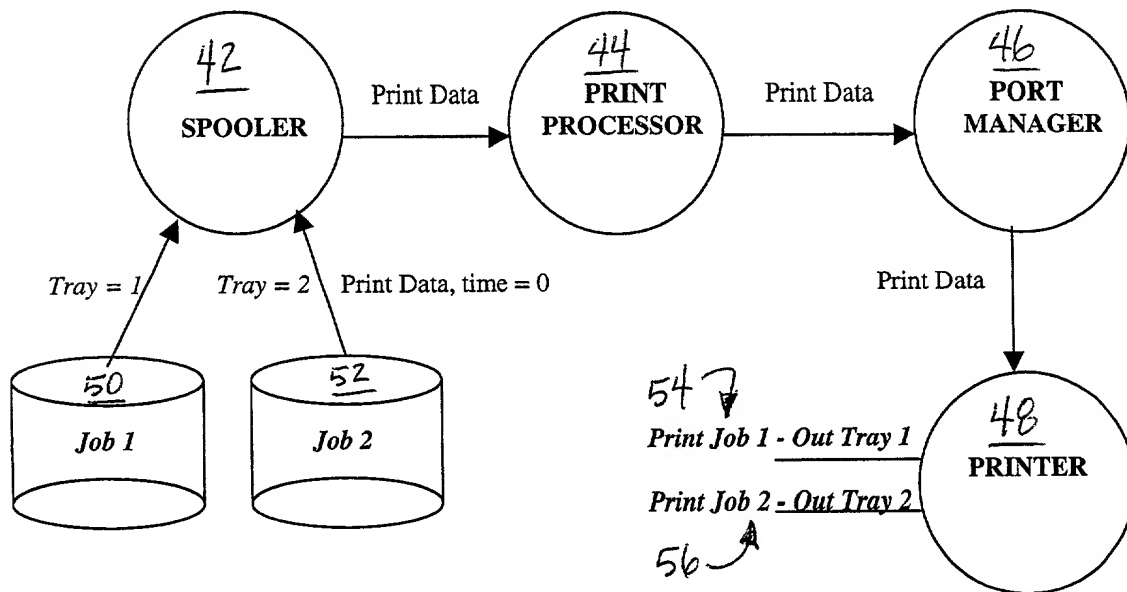
Completed Time = t1 + t2

FIG 7

Fig. 2b - Interleaved Despooling of Print Jobs 1 & 2 – Journaled Data

Print Data

62
SPOOLER

— Journaled Data →

64
PRINT PROCESSOR

Print Data

66
PORT MANAGER

Journaled Data, Time = 0

Tray = 1   *Tray = 2*   Print Data

Journaled Data

Print Data

72
Job 1

74
Job 2

70
PRINT DRIVER

54
Out Tray 1

Out Tray 2

56

48
PRINTER
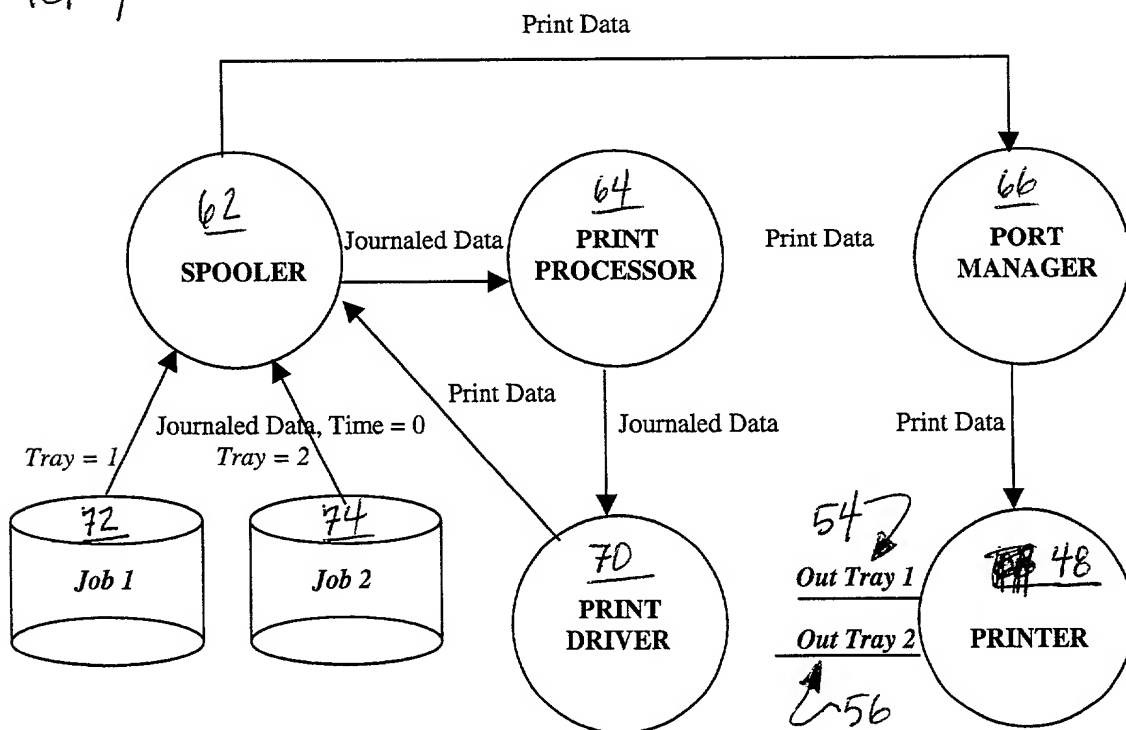
Completed Time = t1 + t2

FIG. 8

Multiple Print Job Progression – Single Printer – Interleaved

48

PRINTER

54

Tray 1- PJ₁

Tray 2 – PI₂ , PI₃

56

---

80   *PJ₁ – 10 of 1000 Pages*   Tme = **10t**

82   *PJ₂ - 10 Pages*   Completed = **20t**

84   *PJ₁ – 10 of 990 Pages*   Time = **30t**

86   *PJ₃ – 10 Pages*   Completed = **40t**

88   *PJ₁ – 980 of 980 Pages*   Completed = **1020t**